



Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 51788 PCT	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/FR2003/001222	International filing date (day/month/year) 16 avril 2003 (16.04.2003)	Priority date (day/month/year) 25 avril 2002 (25.04.2002)
International Patent Classification (IPC) or national classification and IPC H05H 1/24		
Applicant RASAR HOLDING N.V.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I  Basis of the report
- II  Priority
- III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

Date of submission of the demand 24 novembre 2003 (24.11.2003)	Date of completion of this report 05 October 2004 (05.10.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR2003/001222

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

the international application as originally filed

the description:

pages \_\_\_\_\_ 1-37 \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_ \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

the claims:

pages \_\_\_\_\_ 1-32 \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, as amended (together with any statement under Article 19)  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

the drawings:

pages \_\_\_\_\_ 1/6-6/6 \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_ \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

the sequence listing part of the description:

pages \_\_\_\_\_ \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_ \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).  
 the language of publication of the international application (under Rule 48.3(b)).  
 the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

contained in the international application in written form.  
 filed together with the international application in computer readable form.  
 furnished subsequently to this Authority in written form.  
 furnished subsequently to this Authority in computer readable form.  
 The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
 The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4.  The amendments have resulted in the cancellation of:

the description, pages \_\_\_\_\_  
 the claims, Nos. \_\_\_\_\_  
 the drawings, sheets/fig. \_\_\_\_\_

5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

International application No.

PCT/FR 03/01222

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	1-32	YES
	Claims		NO
Inventive step (IS)	Claims	1-32	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-32	YES
	Claims		NO

**2. Citations and explanations**

See separate sheet.

**Supplemental Box**  
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Separate sheet

Observations under the terms of PCT Article 6 (clarity)

1. The claims are not clear. In particular, the wording of claims 1 and 10 is inconsistent and, as a result, it is impossible to identify which technical features are essential for the plasma generation process (claim 1) to run or the plasma-generating device (claim 10) to operate. One such inconsistency is that, in claim 1, a single stationary magnetic field is generated (step (a)), while claim 10 discloses means for generating two uniform fields, B1 and B2. Moreover, the structure of containment chamber 40, as defined in claim 10 (feature (a)), appears to be necessary for generating the desired gyromagnetic field, yet this structure is not present in claim 1.
  
2. It is clear from the description (cf. "Aim of the invention", page 2, lines 7-15) that the feature whereby the generated plasma is a cold plasma, is essential for the definition of the invention. Since the independent claims do not contain this feature, they do not fulfil the requirements of PCT Article 6 in conjunction with PCT Rule 6.3(b), which stipulate that each independent claim must contain all of the technical features essential for the definition of the invention.

The expression "applying said signals generating (i) ... and (ii) ..." in claims 1 and 10 defines a result to be achieved (cf. the PCT International

**Supplemental Box**  
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Separate sheet

Search and Preliminary Examination Guidelines,  
5.35).

3. The same reference signs should be used in a consistent manner in the independent claims to refer to the same technical features ("V3", "V6", "V7", "1", "40", etc.).

Under the terms of PCT Rule 11.13(1), reference signs that are not mentioned in the description (or the claims) must not appear in the drawings, and vice versa. As far as the following reference signs are concerned, this requirement is not met:

- Bla and Blb (for example, the description, page 18, line 1);
- E1 (for example, the description, page 25, line 16; the claims);
- EM1 and EM2 (for example, the description, page 26, line 15; the claims); and
- V3, etc.

Box V

## V.1. Prior art cited in the international search report:

US 3 024 182 A (D1) describes a method for heating a gas-phase material to an extremely high temperature using a stationary magnetic field in a containment chamber. Said method includes steps of

**Supplemental Box**  
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Separate sheet

generating a magnetic field, generating plasma, generating electric fields  $E_R$  and  $E_{D.c.}$ , applying electrical signals 29, 31 and 33 that control the value of said stationary magnetic field and the frequency and amplitude of the voltages generating said electric fields, and applying said electrical signals that generate cyclotron resonance(s) (cf. D1, figure 2 and the text).

US 5 021 919 A (D2) relates to a method and a device for generating charged and/or uncharged particles. Electromagnetic energy is fed into a resonant cavity in a gaseous medium in the presence of a first magnetic field. A second magnetic field is applied in association with a gyromagnetic material in order to adjust said cavity (cf. D2, column 3, lines 58-61).

At present, the content of the following documents appears to be less relevant to the evaluation of the claimed subject matter:

- Patent Abstracts of Japan, vol. 014, no. 213 (E-0923) 7 May 1990 & JP 02 049334 A (D3) (method for generating charged particles);
- Patent Abstracts of Japan, vol. 2002, no. 06, 4 June 2002 & JP 2002 058417 A (D4) (apparatus for sterilising air near a slaughterhouse using plasma); and
- US 4 636 688 A (D5) (gyrotron).

**Supplemental Box**  
(To be used when the space in any of the preceding boxes is not sufficient)

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V.2. Novelty:

In spite of the current wording (cf. the observations concerning the lack of clarity, above), it appears that the subject matter of claim 1, i.e. method steps (a) to (e) for generating a multipole gyromagnetic electronic cyclotron resonance plasma in a gaseous medium, is not anticipated by the content of document D1 or that of any of the other documents, D2 to D5. D1 does not describe, in particular, the generation of at least a first variable electric field in the plasma by applying at least one AC voltage of variable frequency and amplitude, in conjunction with the generation of at least a second electric field in the plasma by applying at least one AC voltage, with the vector of said second electric field being on an axis that is not parallel to the axis of the first electric field vector.

Moreover, it appears that none of the documents cited in the international search report describes a plasma-generating device as claimed in claim 10. This novelty is due not only to the aforementioned features but also to the novel features of the containment chamber.

It follows that the subject matter of claims 1 and 10 appears to fulfil the requirement of novelty defined in PCT Article 33(2).

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**V.3. Inventiveness:**

None of documents D1 to D5 suggests the aforementioned features (cf. point V.2).

The subject matter of claims 1 and 10, therefore, appears to fulfil the requirement of inventiveness defined in PCT Article 33(3).

**V.4. Industrial applicability:**

The subject matter of claims 1 to 32 fulfils the requirements set forth in PCT Article 33(4).

The applicant is invited to file new claims in which the above observations and the requirements of PCT Rule 6.3 are taken into consideration.